

January 1, 1927

TESTS OF MAGNETIC MATERIALS

This letter circular supplements Test Fee Schedule 143, effective January 1, 1927, and in connection with it, supersedes Letter Circular 85 as revised July 1, 1926, including Fee Schedules 141 and 142. The substance of the earlier circular and schedules is however retained, and no change in fees is made.

Scope of Magnetic Testing

The regular routine magnetic testing of the Bureau of Standards consists of the determination of normal induction and hysteresis data and the measurement of core loss. Tests to be made beyond the range indicated in the Fee Schedule or under different conditions, should be arranged for before shipment of the material. Other special tests include the calibration of specially prepared standard specimens for use in checking the accuracy of magnetic testing apparatus, the determination of the susceptibility of feebly magnetic substances and other tests involving the determination of magnetic quantities.

Normal Induction and Hysteresis

The points at which normal induction and hysteresis data should be taken depend upon the nature of the material and the use for which it is intended and should be specified in the request for test.

Test specimens must be at least 25 cm (10 inches) long and may be of any uniform cross-section having dimensions not exceeding 1.3 cm by 4 cm (3/4 inch by 1 5/8 inch) or, round, having a diameter of 1.27 cm (1/2 inch). The rectangular section is preferred. In the case of sheet material, it is recommended that the sampling procedure specified by the American Society for Testing Materials be followed.

Samples of magnet steel must be submitted in the hardened condition.

Core Loss

For this test 10 kilograms (22 pounds) of material, cut with a sharp shear into strips 50 cm (19 11/16 inches) in



length and 3 cm (1 3/16 inches) in width, are required. Half of the strips should be cut parallel and half at right angles to the direction of rolling. The strips should be cut to size by the person submitting the material for test. It is recommended that the sampling procedure specified by the American Society for Testing Materials be followed.

Return of Test Specimens

Unless specifically requested, test specimens will not be returned.





